

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A wavelength-tunable laser comprising:

- a first resonant cavity containing an optical amplifier medium;
- a pair of opposed^{19, 20} reflector members which define the first resonant cavity;
- a second resonant cavity¹²; and
- a reflector¹³ external to said first resonant cavity delimiting the second resonant cavity

thereinbetween, and selectively reflecting an integer number N of optical frequencies, wherein said two opposed reflector members are not wavelength selective and delimit an amplifying first active section coupled to a phase tuning second active section, each of said two active sections connected to an electrical supply, said second ~~having~~ active section having an effective group index that can be adjusted electro-optically as a function of an electrical voltage applied, said first and second active sections having dimensions such that a difference between optical frequencies of any two resonant modes of said first resonant cavity is never equal to a difference between optical frequencies of any two selectively reflected frequencies of said reflector, and second active section modifying an optical length of said first resonant cavity to provide for a selective coincidence of only one optical frequency between the resonant modes of said first resonant cavity and the selectively reflected frequencies of said reflector.

2. (Previously Amended) The wavelength-tunable laser claimed in claim 1 wherein the difference between any two adjacent reflected optical frequencies of is constant and the optical frequencies are interleaved with consecutive optical frequencies of resonant modes.

3. (Previously Amended) The wavelength-tunable laser claimed in claim 2 wherein the ratio of the difference between two adjacent optical frequencies of two resonant modes to the difference between two adjacent reflected optical frequencies is equal to $N/(N-1)$.

4. (Original) The wavelength-tunable laser claimed in claim 1 wherein said external reflector is a waveguide including at least one sampled Bragg reflector grating optically coupled to said first cavity.

5. (Original) The wavelength-tunable laser claimed in claim 4 wherein said waveguide includes a plurality of sampled Bragg reflector gratings and each sample of a first grating, with the possible exception of a first of them or a last of them, is between two consecutive samples of a second grating.

6. (Previously Amended) The wavelength-tunable laser claimed in claim 4 wherein a sampled Bragg grating of said waveguide has a pitch that is not constant.

7. (Previously Amended) The wavelength-tunable laser claimed 1 wherein said first cavity is formed between a first outside face of said first section and an outside face of said second section.

8. (Previously Amended) The wavelength-tunable cavity claimed 1 wherein said first cavity is formed between a first outside face of said first section and an entry face of said reflector.

AMENDMENT UNDER 37 C.F.R. § 1.111
U. S. Application No. 10/079,875

9. (Previously Amended) The wavelength-tunable laser claimed in 1 wherein the variation of the effective group index of said phase tuning second active section is obtained by a Stark quantum confinement electro-optical effect.

CA 10. (Previously Amended) The wavelength-tunable laser claimed in 1 wherein the variation of the effective group index of said phase tuning second active section is obtained by a Stark quantum confinement electro-optical effect.

11. (Previously Added) The wavelength-tunable laser claimed in claim 1 wherein the electrical supply of the second active section modifies the effective group index of said second active section to change the optical length of the first resonant cavity and slip a comb of said resonant modes of said first resonant cavity.
